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WHITE PINE

WHITE PINE PLANTED 6x6 FEET

A 15-Foot Growth In 8 Years on Poor Soil.

MARYLAND STATE BOARD OF FORESTRY

BALTIMORE, MARYLAND.

WHITE PINE
(Pinus strobus)

The white pine is the largest and most rapid growing of all conifers native to Eastern United States. It was formerly very abundant and made up the greater part of the lumber cut throughout the Country. Maryland, like many other states, has completely exhausted the original stands of this species, and today only small groves or scattered individual specimens can be found. There is, however, within the State, much cut-over timber land and abandoned agricultural land that is paticularly adapted to the growing of white pine. On such lands, where the soil is suitable, white pine is the best tree to grow because of its rapidity of growth and the resulting yield per acre excel that of any other pine or any of the hardwoods. Its natural range and the diversity of soils and climate to which it adapts itself, make the white pine an ideal tree for extensive reforestation. Particularly is the white pine adapted to the needs of the farmer and small woodland owner who aim to secure the greatest yield in the shortest possible time. It is chiefly for this class of woodland owner that the following facts are presented.

Range

Found naturally in the forests of Maryland, white pine occurs through all the western counties, east and south to the edge of the Piedmont on a line running approximately from Washington, D. C., through Baltimore, Havre de Grace and Elkton. In commercial quantities it does not occur naturally east of Fairview Mountain in Washington County.

Characteristics.

In the forest the white pine has a tall straight, somewhat tapering trunk with a thin irregular crown. In the young tree the lower branches are generally persistent for some time after they are killed by shading, but the trunk gradually clears itself as it grows older. Trees in the open have broad crowns, reaching nearly to the ground. The bark on young trees is smooth, thin, and greenish brown in color, becoming thick and rough with age, and changing to a dark gray-black.

The cones are from 4-6 inches long, very slender, and the scales are without prickles. They open in October and allow the winged seeds to escape. The needle-like leaves of the white pine are invariably found in clusters of five. This feature serves to distinguish it from all other native pines of Maryland.

The young trees can endure considerable shade, but as they develop the demands for direct sunlight are more and more exacting.

Soil And Moisture.

This tree will grow on almost any kind of soil but ideal conditions are found on deep fertile, well drained moist

sites, with a porous subsoil. It grows poorly on the very dry, sandy soils, gravelly hillsides, swampy lands and where exposed to severe winds on ridges and mountain sides. On these poorer sites there are other species that should be planted in preference to the white pine, on account of their better and faster growth under adverse conditions. In Maryland cool sites should be selected, such as slopes, and coves with a northern exposure.

Enemies.

Three enemies of white pine should be considered in establishing plantations: (1) Fire, a danger common to all plantations, must be fully guarded against by separating the planting from other woodlands, or by safety strips cut clear of inflammable material. This should be not less than 50 feet wide. (2) The white pine weevil, a small insect that tunnels through the leader of the past season's growth, causing it to die. This results in the loss of a year's height growth and forms a crook in the stem, as one of the lateral branches takes the place of the leader. The best control measure is to cut out and burn all of the affected shoots as soon as they show signs of wilting in mid-summer. It is not regarded as a serious trouble. (3) The white pine blister rust,—a fungus disease which has done considerable damage in New England, but has not as yet (1922) been noted in Maryland. This disease requires two hosts to complete its development,—the first stage is on the leaves of currants or gooseberries, and the second on white pine. Therefore by destroying the currants and gooseberries within 300 feet of the plantation, the pines may be protected. The disease works in the bark, causing cankers which ultimately girdle and kill the portions of the tree attacked.

Uses Of The Wood.

The wood of the white pine is soft, light, not strong, straight and fine grained, moderately durable, shrinks but little, does not warp or split in seasoning, and is very easily worked. Formerly, because of its great size and abundance, it was used in the manufacture of a greater number of articles than any other wood in America. Much of the present day white pine is from second growth and plantation stands which yield only low grade material, used for box boards, farm lumber, fencing, wooden ware and match stock. Plantation stock, such as Maryland can produce, will yield similar material and what is not used locally on farms can be sold to box board and match manufacturers. The demand for white pine lumber is increasing and will continue to do so.

Suitability For Planting.

On account of the qualities of rapidity of growth, value of the lumber, and ease with which it can be managed, white

pine ranks high among those trees suitable for forest planting. It can be planted either as a pure stand, or in mixture with such species as red pine, red oak, white ash and black locust. Where the attacks of the enemies already mentioned are serious, it is best to plant white pine in mixture, but this condition does not at present apply in Maryland, and the matter is largely one of choice with the individual. On the Baltimore City watershed at Loch Raven both kinds are to be found, pure stands and in mixture with black locust. Other plantations of pure white pine have been successfully established in Montgomery, Frederick and Garrett Counties. The usual spacing for such plantations is 6 by 6 feet, or 1,210 trees to the acre.

Starting in with the mountains of Garrett County, the planting range of white pine would continue through Western Maryland and the Piedmont Plateau up to the southern boundaries of Montgomery, Howard, Baltimore and Harford Counties. Further eastward and southward the sandy soils of the Coastal Plain are not so well suited for planting white pine as for the other pines, especially the loblolly.

Yields And Returns.

Under average growing conditions in Maryland the white pine will make a diameter growth at the breast-high point, of about 5 to 6 inches, and height growth of 35 to 40 feet in 20 years, which makes an average of nearly 2 feet per year. The spacing between whorls of branches on the trunk gives an accurate measurement of height growth during any one year and it is not infrequent to find this spacing as much as 3 feet.

No example of the growth of white pine through a rotation period can be given for Maryland. However, New York and Pennsylvania furnish examples of pine growing that should apply to Western Maryland, since the character of the land and the climate there is much the same as in Pennsylvania and New York. Three classes (qualities) of soil are given on which pine can be successfully grown.

Table—Lumber yield per acre of even aged, fully stocked stands of white pine.

AGE	LUMBER YIELD PER ACRE		
	Good Soil	Medium Soil	Poor Soil
Years	Bd. ft.	Bd. ft.	Bd. ft.
20	4500	.....	.....
25	8400	5400	.....
30	13900	9600	5300
35	22500	15900	9300
40	32800	23500	14200
45	41800	30600	19200
50	49100	36600	24100
55	55000	42000	29000
60	60200	46900	33600

NOTE:—The State Board of Forestry maintains a forest nursery where trees suitable for forest planting are grown and distributed at cost to landowners of the state. Full particulars may be obtained upon application.